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The purpose of the study was to explore the extent to which a prototype multi-media self-instructional system comprised of 48 lessons can be used to help grade 11 and 12 students acquire defined levels of Gregg shorthand capabilities. Criteria for measuring student competencies and performance objectives at interim points and at the completion of the system were defined. Prerequisite entry abilities were also defined to provide a basis for selection of a population to test the system. Learning tasks necessary to achieve minimum competencies in the first six lessons of the system have been identified and sequenced. An evaluation matrix to measure student achievement has been developed. A prototype of lessons 1-6 (VT 007 013) is completed and ready for pilot testing starting in October 1968. The instructional system utilizes the following media: (1) a sound film cartridge to be used individually, (2) Gregg Shorthand textbook, Diamond Jubilee Series, (3) student workbook, (4) tape recorder and prepared dictation tapes, and (5) instructor's handbook. (MM)

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FINAL REPORT
Project No. 0E7-0031
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AN EXPERIMENTAL SELF-INSTRUCTIONAL SYSTEM FOR INTRODUCING GREGG SHORTHAND

August 1968

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U.S. DEPARTMENT OF
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by
F. Ross Byrd
Barbara A. Christensen

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SUMMARY

Objective

The purpose of this study is to explore the extent to which a prototype multi-media self-instructional system comprised of 48 lessons can be used to help eleventh and twelfth grade students acquire defined levels of Gregg shorthand capabilities.

Procedure

Criteria for measuring student competencies at interim points and at the completion of the system and interim and terminal performance objectives were defined. Prerequisite entry abilities were also defined to provide a basis for later selecting of a population suitable for realistically testing the system.

Learning tasks necessary to achieve minimum competencies in the first six lessons of the system have been identified and sequenced. An evaluation matrix to measure student achievement has been developed. A proposed strategy for enabling learners to perform the Lesson 6 criterion tasks has been identified and appropriate content materials have been developed.

Results

A prototype of lessons 1-6 is completed and ready for pilot testing in October, 1968.

DEFINITION OF TERMS

Gregg Shorthand: A method of writing longhand by substituting symbols for longhand letters, syllables, and/or words.

System or Instructional System: . . . a set of elements or subsystems (each of which may possess some degree of independence but at the same time is an integral element of the larger ensemble), together with the relationships between the elements and between their properties. The elements or subsystems are centralized and organized by a communications network which permits interaction and makes for interdependence so that they function as a coordinated whole to produce some process and/or product which is unique to that particular system.

Self-Instructional System: An instructional system designed to enable a learner to achieve specified objectives without the help of another person (e.g., a teacher).

Behavioral Objectives: An instructional objective that meets three criteria: (1) What it is that a student who has mastered the objective will be able to do, (2) under what conditions he will be able to do it, and (3) to what extent he will be able to do it.

Instructional Strategy: A procedure for manipulating the instructional environment to produce specified outcomes.

Stenographer: A person who takes dictation in shorthand and transcribes dictated material, using typewriter. Performs variety of clerical duties, except when working in stenographic pool.

Audiscan Projector: A machine which, in a film cartridge, synchronizes a 16mm continuous loop film strip and an audio tape. The machine can be programmed for up to 25 minutes of sound and up to 225 pictures (frames) per cartridge.

INTRODUCTION

Clerical and related occupations, which approximately 12 million persons are employed, is a major category of employment in the United States. The U. S. Bureau of Labor Statistics estimates that in these occupations more than 300,000 new postions will open each year for the forseeable future. In addition, replacements for those leaving these occupations are estimated to exceed 300,000 each year.[1]

The Bureau of Labor Statistics predicts that:

> The number of clerical and related jobs is expected to increase mainly because the volume of paperwork will undoubtedly expand as business organizations grow in size and complexity . . . The new positions created by growth are expected to far outnumber the clerical jobs eliminated by mechanization.[2]

Neuner and Keeling note that, "During the past ten years the ratio of secretaries, stenographers, and typists to clerical workers as a whole has been rising and now represents about one-fourth of this group."[3]

A significant proportion of secretaries and stenographers use shorthand. Anderson observes that, "Studies made in the last five years indicate that approximately the same percentage of transcription workers report they use shorthand either part or full time on their jobs as were useing shorthand fifteen years ago."[4] In 1966, Perkins, Byrd, and Roley identified tasks performed by 663 office employees randomly selected by size of office in all major industrial classifications in Washington State. They found that 32 percent of all office workers sampled use shorthand in their jobs and that 84 percent of those identifying themselves as secretaries or stenographers did so.[5] Consequently, one important phase of high school business education programs involves the training of stenographers.

The introduction of shorthand theory and development of shorthand capability has traditionally been conducted by a teacher in a rather traditional classroom setting. Some analysts believe that a shortcoming of this procedure is the limitations of a teacher's ability to provide for differences in the abilities of learners to acquire shorthand capabilities.[6] "Drop-outs" and failures are substantiated.[7]

Purpose

The purpose of this project is to develop a prototype multi-media self-instructional system for helping pupils acquire competencies in the use of Gregg shorthand at individual paces consistent with their capabilites and interests.

Specific behavipr objectives for an introductory series of 48 Gregg shorthand lessons have been defined in terms of specific performance capabilities. An instructional strategy for helping learners acquire those capabilities has been formulated.

Materials constituting the first six lessons of the projected 48-lesson series have been prepared. Each lesson involves use of the following components:

film-tape presentation

materials from the Gregg Shorthand, Diamond Jubilee Series

a student workbook

pre-recorded dictation tapes (starting with lesson 9)

an instructor's handbook assisting teachers with performance of the instructional management role.

Pilot and field testing of the prototype will help answer the following questions:

1. To what extent is the prototype an effective means of introducing Gregg shorthand? Measures of results will be based on the following criteria:

   To what extent did the learners achieve the interim and criterion objectives?

   What were the mean and modal numbers of repetitions of specific components needed to achieve the interim and criterion objectives?

   What were the mean and modal amounts of time used by learners attempting to achieve the criterion objectives?

2. What are learner reactions to use of the prototype system?

3. What are the reactions of instructors who perform the instructional management roles involved in the system?

RELATED RESEARCH AND THOUGHT

Numerous instructional technologists note that major requirements for learning include: attention to stimuli, relevant response to stimuli, sequential programing or ordering of the subject matter, distinctiveness of cues, immediate feedback from responses, and reaction to stimuli at rates appropriate to each individual learner.[8]

Within the last few years, extensive use has been made of "laboratories," consisting of electronic devices enabling students to practice at differing rates of speed.[9] Instructional equipment has become more sophisticated.[10] However, as Anderson has noted, more research is needed to measure results obtained by use of new procedures.[11]

O'Connell reports a study which utilized programed shorthand theory materials at the high school level.[12] She concluded that while students achieved relatively high mastery of theory, the programmed materials did not exceed textbooks as means of preparing pupils to actually take dictation.

Henson developed linear programmed materials for the first thirty lessons in Gregg Shorthand. Experimental groups using those materials scored higher on the identified criteria than did the control groups taught in the "traditional manner."[13] Taylor, Ricketts, and Clark have developed and tested programmed shorthand materials at the college level. Findings reported are generally inconsistent.[14] Anderson concludes, "Much research remains to be done in this area before any conclusive findings can be reported.[15]

While many efforts have been made to improve the teaching of shorthand,[16] relatively slight effort has been made to introduce shorthand theory or to develop writing capabilites by utilizing various media organized in ways that increase allowance for differences in the characteristics of individual students.

Mager and others have written extensively on the need for identifying instructional objectives in terms of overt learner behavior.[17] Glaser states:

> In contrast to the broad question of education goals, "terminal behavior" is defined as the performance that the student should display at the end of a specific

> instructional situation. There can be minimum levels set for attainment and maximun levels left for individual initiative.[18]

Russon has noted that in skill development the need for establishing specific goals is primary:

> Psychological research has shown that skill learning improves when the learner is aware of the results of his practice. . . . Certain qualifications are needed in defining goals for skill learners, however. The goal must be attainable, realistic, clearly defined, and in line with the final use of the skill.[19]

Professional literature is replete with opinions regarding the adequacy of conventional methods of shorthand instruction. However, Frink notes that:

> Although different methods of reporting classroom achievement were used, possibly due to difference in factors involved . . . a careful review of different reports discloses somewhat the same results. In general, less than 50 percent of the stenographic students completing two years of shorthand are capable of producing either passing verbatim or mailable transcripts from material dictated at 60 words a minute reported as ranging from 11 to 20 percent.[20]

After a review of literature and selcted state guides, Taylor established tentative objectives for first-year shorthand. She found that a large majority of learners did not meet the objectives set for theory, dictation speed, or ability to produce mailable letters.[21]

Several levels of shorthand learning can be identified. Baisley observes that:

> In shorthand skill building at the elementary level, the student is concerned primarily with learning the principles of the shorthand system; at the application level, with building speed in taking dictation; and at the intergration level, with developing the ability to transcribe notes into mailable copy.[22]

Shorthand instruction reasonably can be evaluated in terms of an ultimate objective, mailable letters. Obviously, such evaluation is not possible during early stages of instruction. But some reasonably valid indicators or progress have been found.

Pullis studied the relationship of learners' abilities to write accurate shorthand outlines and their achievement in shorthand dictation at the college level. He found that:

> The coefficient between shorthand accuracy and shorthand dictation was .8326, which as significant at better than the 5 percent level. The coefficient of determination indicated that approximately 69 percent of the achievement in shorthand dictation was directly associated with shorthand accuracy.[24]

Patrick analyzed the relationship between the mastery of brief forms and priniples and correct transcription. He concluded that:

> . . .while many outlines for brief forms and principles which are not theoretically correct can be transcribed correctly, there is a much greater likelihood that the outlines will be transcribed correctly if they are theoretically correct. Therefore, teaching for, and testing on, theoretical accuracy of shorthand outlines would appear to be an important part of the shorthand instructional and evaluation program.[25]

Other research by Calder, Hillestad, Jester, and McKenna lend support to Patrick's conclusions.[26]

PROCEDURE

Behavioral objectives are defined in terms of minimum competencies to be acquired by learners at the completion of Lesson 48 in the Gregg Shorthand, Diamond Jubilee Series.[27] Interim objectives for Lessons 6, 12, 18, 24, 30, 36, and 42 have also been established to facilitate adequate student progress throughout the system. Provisions for student self-evaluation are included in each lesson. The ultimate objectives for Lesson 6 and 48 are listed in Appendix A.

Task Analysis

Primary learning tasks at the elementary level in shorthand, as summarized by Balsley, are:

learning the alphabet system

learning the principles of the system through reading correctly written outlines

learning to write words according to principles of the system

learning to record dictation of easy material in shorthand form

developing automatic recall of commonly used words and phrases as whole units (word- and phrase-level recognition).[28]

Such task analysis has been completed for the first six lessons. See Appendix B.

Instructional Strategy

An instructional strategy designed to enable learners to successfully achieve the criterion tasks has been formulated. The strategy selected for the first six lessons is diagrammed in Appendix C.

The following media are utilized in the prototype to perform specific functions.

Audiscan Projector: The Audiscan projector uses a sound film cartridge. The Audiscan will be used by learners individually. The combination of audio and visual communication media is utilized to individualize the introduction of shorthand theory and to build learners' reading and writing capabilities. Functions to be performed by the Audiscan include:

present stimuli (shorthand strokes, words, and phrases)

elicit oral responses (in concert with the Audiscan and repeating after the audio tape)

introduce writing of shorthand (directions in which strokes and/or words are written)

elicit written responses, especially in the initial stages of writing.

Cartridges for the first six lessons are completed and ready for the initial pilot test (see Appendix D.)

Gregg Shorthand, Diamond Jubilee Series: The published high school textbook will provide a review of shorthand principles presented in each lesson and extensive practice in reading related matter (letters and articles).

Student Workbook: A prototype workbook using a programmed format has been prepared. It is designed to:

help learners transcribe into longhadn starting with Lesson I shorthand words, sentences, and letters

provide mechanisms for self-evaluation after completion of each lesson

introduce and/or reinforce related learning tasks (e.g., business vocabulary, spelling, synonyms) by use of specialized drills.

The sequence of learning activites followed by each learner will be ascertained by analysis of work book entries. (See Appendix E.)

Tape Recorder and Prepared Dictation Tapes:, Tapes will be used to develop students' writing speed. Dictation will begin at 40 words a minute. A "student trascript" will accompany the tapes. It will contain:

preview sheets for each letter containing difficult words written in shorthand

each letter not appearing in the text will be written in shorthand

a longhand transcript of each letter not appearing in the text.

Instructor's Handbook: The handbook for the instructional manager will contain:

an orientation to the self-instructional system and its organization

directions for evaluation procedures to be followed after Lessons 6, 12, 18, 24, 30, 36, 42, and 48

evaluation instruments to be administered and scored by the instructional manager

directions for administering the Turse Shorthand Aptitude Test and evaluating grade averages to be used as screening devices.

Student Daily Log: Learners will record the time used for each component of each lesson, the numbers of times they repeat components, and comments regarding difficulties and their feeling toward the prototype as a method of learning.

Prerequisite Entry Capabilities

Entry capabilities regarded as minimal for use of the system have been extablished. Numerous studies appraise various means of predicting success in shorthand. Few, however, provide for measurement of motivation. The purpose of identifying prerequisite entry behaviors is to enhance the probability of success of the learners. They are not inteded to predict the degree to which learners might be successful.

Pauk found that the four verbal subtests (spelling, phonetic association. word discrimination, and word sense) of the Turse Shorthand Aptitude Test[29] prodicted success in shorthand as measured by first-year shorthand grades to a greater degree than did the tree "mechanics of shorthand" subtests[30] (stroking, dictation, and symbol transcription). In Pauk's study (N = 41), the obtained correlation (r = .66) of the verbal subtests was slightly higher than that of the total Turse test (r = .63) and much higher than the correlation for the mechanics of shorthand subtests (r = .34).

In a similar study of 316 high school students, Davis obtained similar results.[31]

Many writers suggest use of a combination of criteria for selection of potentially successful shorthand students.[32] Students must neet the following criteria to enter the system:

eleventh grade standing

cummulative grade average of "C" excepting English grades

cummulative grade average in English of "C"

a score of 115 on the four verbal subtests of the Turse Shorthand Aptitude Test.

Evaluation Instruments

Evaluation instruments will be designed to measure degrees to which learners achieve the interim and criterion objectives. Students will evaluate their own progress by use of self-check lists after completion of each lesson.

Primary focus shall be on the achievement of individual learners. No group comparisons will be made. As Glaser and Klaus state, "When criterion referenced measures are used, standards are established in terms of the behavioral content itself rather than in terms of comparisons with the group . . . a standard can be established which reflects the minimum level of performance . . ."[33]

Pilot Test Plans

The first six lessons are ready for pilot testing. High school students with no shorthand background will complete the six lessons. One of the authors will observe their performance and note problems encountered in use of the prototype. On the basis of test results, strategies will be analyzed and materials will be revised.

System Development and Field Testing

1. Employing the revised strategies, the system (48 lessons) will be designed and appropriate materials developed.

2. Schools to be used for field testing will be small high schools that do not presently offer shorthand.

3. Students will elect to participate in experimental use of the system.

4. In each school a teacher with no shorthand background will serve as instructional manager.

5. Instructional managers will send the evaluation instruments and results to the investigator after students complete Lessons 6, 12, 18, 24, 30, 36, 42, and 48.

6. Instructional managers will send the students' daily logs to the investigators as students compelte each chapter.

7. Learners and instructional managers will be requested to complete an opinion questionnaire after Lessons 30 and 48.

Treatment of Data

Results will be analyzed on the following bases:

1. To what degrees did learners achieve the criterion behaviors as measured by terminal evaluation instruments?

2. Were the mean and modal numbers of repetitions of each component of each lesson:

   $$\text{Mean} \leq 2.0$$

   $$\text{Mode} \leq 2.0$$

3. Was the mean and modal amount of time spent on each lesson by each learner:

   Mean $\leq$ two (2) hours per lesson

   Mode $\leq$ two (2) hours per lesson

4. How did the learners react to the self-instructional system?

5. How did the instructional managers react to the self-instructional system and to their perceived role in the system?

RESULTS

Utilizing one proposed strategy, materials for the first six lessons of the self-instructional system in Gregg Shorthand have been developed and are ready for pilot testing.

Illustrative excerpts from Audiscan Cartridge 5 are printed in Appendix D. A sample of the workbook exercise for Lesson 3 is located in Appendix E.

The student workbook for Lessons 1-6 has been completed and bound separately.

REFERENCES

1. U.S. Department of Labor, Occupation Outlook Handbook, (Washington, D.C.: Government Printing Office, 1966-67 Edition), p. 280.

2. Ibid.

3. John J. Neuner and B. Lewis Keeling, Administrative Office Management, (Cincinnati: South-Western Publishing Company, 1966), p. 33.

4. Ruth I. Anderson, "Significant Implications of Research in Shorthand and Transcription," Secretarial Education With A Future, XIX, American Business Education Yearbook, (Washington, D.C.: United Business Education Association, 1962), pp. 49-50.

5. Edward A. Perkins, Jr., F. Ross Bryd, and Dennis E. Roley, Clusters of Tasks Associated with Performance of Major Types of Office Work, (Final Report, Office of Education, Department of Health, Education, and Welfare, 1968), pp. 26, 82.

6. Clare M. Fleser, "Wireless System of Drop-outs and Failures," Journal of Business Education, XL (December, 1964), 107-108.

7. "Implications of Shorthand Survey of Drop-outs and Failures," Journal of Business Education, XXXII (February, 1957), 215-217; William Selden, "Guidance for Business Education," Vocational Guidance Quarterly, (Winter, 1963-64), 107-112.

8. Leonard J. West, "Programmed Instruction and Teaching Machines," New Media in Teaching Business Subjects, ed. Edwin A. Swanson (Washington, D.C.: National Business Education Association, 1965), p. 48.

9. Russell J. Hosler and Ellen L. Lensing, "How to Use Multiple-Channel Tape Dictation in Shorthand," Business Education World, XLII (September, 1961), 9-10, 30 and XLII (October, 1961), 25-26, 34; Russell J. Hosler, "The Teacher's Role in a Dictation Lab," Business Education World, XLV (May, 1965), 19, 37; Elizabeth T. VanDerveer, "Planning for Student-Centered Stenographic Dictation," Business Education World, XLIV (January, 1964), 8-10.

10. Brendan G. Coleman, "Making Optimum Use of a Dictation Lab," Business Education World, 17-18; Fleser, pp. 107-108.

11. Ruth I. Anderson, "Utilizing Shorthand Research in the Classroom," National Business Education Quarterly, 36 (March, 1968), 46-54.

12. Mary Margaret O'Connell, "The Effectiveness of Programmed Shorthand Materials," National Business Education Quarterly, 36 (March, 1968), 28-33.

13. Oleen M. Henson, "The Development, Utilization, and Effectiveness of Programmed Materials in Gregg Shorthand," (unpublished Ed.D. thesis, Temple University, 1964)

14. Helen W. Taylor, "Development and Evaluation of Programmed Materials for Theory Presentation in Beginning Shorthand Classes," (unpublished Ed D. theses, University of Tennessee, 1963); Orolyn R. Clark, "Development and Evaluation of Programmed Materials for a Beginning Junior College Course in Gregg Shorthand, Diamond Jubilee Series" (unpublished Ed. D. Thesis, University of California at Los Angeles, 1967); Mary K. Ricketts, "Preparation and Evaluation of Programmed Materials for Introductory Lessons in Beginning Shorthand" (unpublished Master's thesis, University of Tennessee, 1962).

15. Anderson, "Utilizing Shorthand Research in the Classroom" p. 52.

16. Lars G. Crandall, "An Experimental Study in Teaching Shorthand using Tapes, Text, and Special Notebooks" (unpublished Ed.D. thesis, Colorado State College, 1960); Mary Stella, "Teaching Shorthand by Television," Business Education World, XXIX (May, 1959), 15-18; Agnes Putney. "Using an Overhead Projector in Beginning Shorthand," Journal of Business Education XL (October, 1964) 19-20; Shirley Barber, "The Effectiveness of Tachistoscopic Training in Collegiate Elementary Shrothand" (unpublised Ed.D. thesis, Colorado State College, 1961); Louse J. Orner, "Reviewing Brief Forms with the Tachistoscope," Business Education World, XXXVIII (February, 1958), 16, 31.

17. Robert F. Mager, Preparing Instructional Objectives, (Palo Alto, Calif.: Fearon Publishers, 1962); Robert F. Mager and Kenneth M. Beach, Jr., Developing Vocational Instruction, (Palo Alto, Calif.: Fearon Publishers, 1967); Esbensen.

18. Robert Glaser, "Components in the Instructional Process," Educational Technology, ed. John P. DeCecco (New York: Holt, Rinehart and Winston, 1964), p. 71.

19. Allien R. Russon, "Evaluating the Use of Standards by Business Teachers in the Skill Areas," National Business Education Quarterly, XXXIV (May, 1966), 13.

20. Inez Frink, "Implications of Research in Shorthand and Transcription," National Business Education Quarterly, XXIX (Spring, 1961), 13.

21. Helen W. Taylor, "Determination of Tentative Objectives and Evaluation of Achievement in First-year Shorthand in High Schools of Georgia" (unpublished Master's thesis, University of Tennessee, 1961).

22. Irol W. Balsley, "Shorthand," Evaluation of Pupil Progress in Business Education, XVII, American Business Education Yearbook, (Washington, D.C.: United Business Education Association, 1960), p. 187.

23. Mathilde Hardaway and Thomas B. Maier, Test and Measurements in Business Education, (Cincinnati: South-Western Publishing Company, 1952) p. 149.

24. Joe M. Pullis, "Relation Between Accuracy and Achievement in Shorthand," Delta Phi Epsilon Journal, IX (February, 1967), 27.

25. Alfred Patrick, "An error Analysis of Selected Brief Forms Principles in Shorthand Notea of Beginning Gregg Diamond Jubilee Shorthand Students," National Business Education Quarterly, XXXIV (March, 1966), 33.

26. Edith A. Calder, "A Study of the Extent to Which Objective Tests May be Used to Measure Shorthand Skills" (unpublished Master's thesis, University of Washington, 1958); Mildred C. Hillestad, "Factors that Contribute to the Difficulty of Shorthand Dictation Material," Delta Phi Epsilon Journal, IV (July, 1962), 2-18; Donald D. Jester, "The Shorthand Transcription Process and its Teaching Implications," Monograph 108 (Cincinatti: South-Western Publishing Company, 1963); Margaret A. McKenna, "Effect of Early Introduction of New-matter Dictation in the Teaching of Beginning Shorthand to College Students," Delta Phi Epsilon Journal, IX (May, 1967), 21-23.

27. Louis A. Leslie and Charles E. Zoubeck, Gregg Shorthand, Functional Method, Diamond Jubilee Series, (New York: McGraw-Hill Book Company, 1963).

28. Balsley, pp. 188-189.

29. Paul L. Turse, "Turse Shorthand Aptitude Test,' (San Francisco: Harcourt, Brace and World, 1940).

30. Walter Pauk, "What's the Best Way to Predict Success in Shorthand?" Business Education World, XLIII (April, 1963), 7-8, 34.

31. Rose Ann Davis, "Will Half a Turse Do Just As Well?" Business Education World, XLVI (January, 1966), 11-12.

32. Russell J. Hosler, "Aptitude Testing in Shorthand," Journal of Business Education, XXII (February, 1947), 25; O'Connell.

33. Robert Glaser and David J. Klaus, "Proficiency Measurement: Assessing Human Performance," Psychological Principles in Systems Development, ed. Robert M. Cagne, (New York: Holt, Rinehart and Winston, 1962), p. 424.

APPENDIX A

Objectives for Lesson 6

1. Learners will transcribe in longhand in no more than fifteen minutes with at least 80 percent accuracy business letters or a series of sentences in shorthand totaling approximately 100 standard words.
   a. Letters or sentences will have been practiced in the text
   b. Standard word = 1.4 syllables
   c. 80 percent accuracy: One error shall be charged for each deviation of any kind:
      (1) each omitted or added word
      (2) each incorrectly transcribed word
      (3) each transposition
      (4) each misspelled word (unless the same word is misspelled twice, in which case only one error shall be counted)
   d. A dictionary or other reference books may be used to check longhand spelling or mechanics of English within the specified time limit.

2. Learners will transcribe in longhand within two minutes 10 randomly selected brief forms with no more than one error.
   a. A maximum of one error shall be charged for any one brief form. One error shall be charged for any of the following:
      (1) each incorrect transcription
      (2) each missing transcription
      (3) each misspelled word
   b. No dictionary or other reference materials may be used.

3. Learners will transcribe in longhand within six minutes 30 selected words and phrases which illustrate various principles of shorthand with no more than nine errors.
   a. A maximum of one error shall be charged for any one word or phrase. One error shall be charged for any of the following:
      (1) each incorrect transcription
      (2) each missing transcription
      (3) each misspelled word
   b. A dictionary or other reference books may be used to check longhand spelling within the specified time limit.

Objectives for Lesson 48

1. Learners will transcribe in longhand within fifteen minutes with at least 95 percent accuracy one of two business letters, each dictated via audio tape at 40 words a minute for three minutes.
   a. Letters will be selected from the text at least three lessons prior to that lesson currently being studied.
   b. 95 percent accuracy: One error shall be charged for each deviation of anh kind from the copy as dictated
      (1) each omitted or added word
      (2) each incorrectly transcribed word
      (3) each transposition
      (4) each misspelled word
   c. A preview, not to exceed 10 percent of the number of words dictated in each letter, will be dictated via audio tape prior to the dictation of the letters. The preview words shall also appear in shorthand on a previous sheet.
   d. A dictionary or other reference books may be used to check spelling or mechanics of English within the specified time limit.
   e. Shorthand notes will not be evaluated as to quality or correctness of form.

2. Learners shall transcribe within four minutes with no more than two errors 30 randomly selected brief forms dictated by audio tape.
   a. Brief forms will be dictated at the rate of one every three seconds.
   b. Credit will be given for a correctly written and transcribed brief form. A maximum of one error shall be charged for any brief form and its transcription. One error shall be charged for any of the following:
      (1) each missing brief form
      (2) each incorrectly written brief form
      (3) each incorrectly transcribed brief form
      (4) each misspelled transcription
      (5) each missing transcription of a brief form
   c. No words shall be written in longhand during the dictation of the brief forms.
   d. No dictionary or other reference materials may be used for transcription.
   e. Learners will begin transcribing the brief forms from the beginning of the list.

3. Learners will achieve a minimum of 70 percent accuracy after writing in shorthand and transcribing in longhand 100 selected words and phrases which illustrate various shorthand principles.

a. Words shall be dictated by audio tape at the rate of one every five seconds
b. Transcription time will be limited to 20 minutes.
c. Credit will be given for a correctly written and transcribed word or phrase. A maximum of one error shall be charged for any one word or phrase. One error shall be for any of the following:
   (1) each missing word or phrase
   (2) each incorrectly written word or phrase
   (3) each incorrectly transcribed word or phrase
   (4) each misspelled transcription
   (5) each missing transcription
d. Learners may use a dictionary to check longhand spelling while transcribing.

APPENDIX B

Learning Tasks - Lessons 1-6

1. Shorthand a phonics-based system
   a. write only sounds that are heard in words
      (1) drop silent letters
      (2) no "c" in shorthand (sounds of s or k)
      (3) doubled letters heard only once
      (4) i for y (e.g., my)

2. Individual strokes representing single sounds (oral stimulus and response)
   a. recognition and recall (involves stimulus and response)
   b. discrimination (stroke 1 from 2, 2 from 1, etc.)
   c. Transcribing (recall and discrimination)

3. Combining strokes (forming words) (orally)
   a. Spelling of each component part of one word (one word stimulus) (requiring stroke recall and discrimination)
   b. Spelling each component part of each of two or more words (more than one word as stimuli)
   c. Transcribing (recall and discrimination) (at a later point, also application)

4. Spelling each stroke in each shorthand word in sentences (recall, discrimination, and application)
   a. Transcribing

5. Individual strokes as words (brief forms) (recall and discrimination)
   a. Transcribing

6. Combining strokes to form multiple words (brief forms or words in phrases) (recall, discrimination, and application)
   a. Transcribing

7. Spelling each stroke of each shorthand word, except brief forms and phrases, in sentences (recall, discrimination, and application)
   a. Transcribing

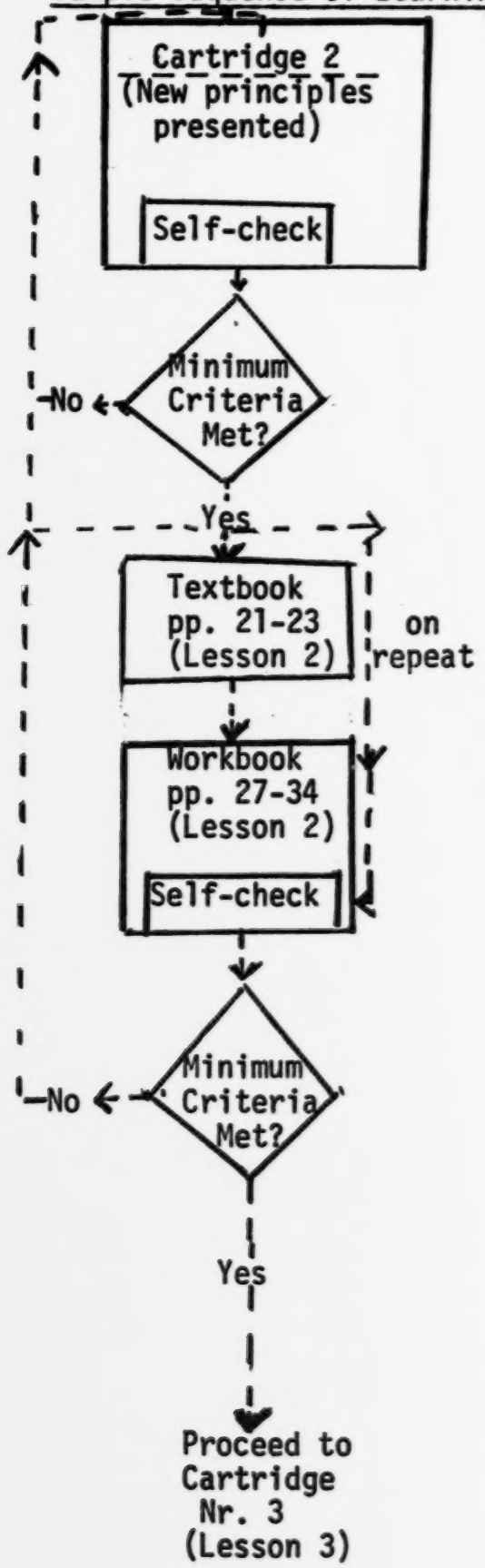
8. Individual strokes as multiple sounds (e.g., sh, ch, th) (recall and discrimination)
   a. Transcribing

9. Spelling each stroke of each shorthand word, except brief forms and phrases, in sentences in letters (recall, discrimination, and application)
   a. Transcribing

The capability to elicit responses at a fast rate (i.e., to force responses) must be built into the above learning tasks. In addition, learners must have opportunities to (1) use the dictionary, (2) memorize brief forms and their longhand spelling, and (3) time themselves while transcribing words and sentences (in letter form).

APPENDIX C

Sample Sequence of Learning Activities (Lesson 2)



Audiscan cartridge Nr. 2. Learners will be saying shorthand strokes and spelling shorthand words out loud as fast as possible.

Three self-check frames--learners evaluate their performance.

Learners make a decision whether to proceed or repeat the cartridge (self-evaluation)

Learners study the new principles and read sentences and letters at least twice

Complete activities, primarily transcribing shorthand into longhand.

The self-check frames review the entire lesson. If learners make too many errors, they are asked to repeat (1) one of the parts of the lesson, either the cartridge or the text/workbook activities, or (2) the entire lesson, starting with the cartridge.

Starting with Lesson 3, "review" words from two lessons back are included in the self-check frames. (e.g., in Lesson 3, the review frames would be from Lesson 1) If learners do not meet minimum performance on the review words, they are asked to repeat the cartridge and/or the text/workbook activities of the review lesson.

Starting in Lesson 9, speed- building practice by the tape recorder is added to the sequence for each lesson.

APPENDIX D

The sequence of activities in cartridges generally consists of the following pattern:

1. Review frames (strokes, brief forms, and/or principles)
2. Introduction of principle A
   a. compared with known principles
   b. introductory words compared with similar words
   c. "cumulative" words--compare or use known as basis for introduction of new words using principle A
   d. Sentences
3. Introduction of principle B (same cycle as above until all new principles are introduced)
4. Self-check frames

Learners respond at least ten times to each principle in the lesson in which it is introduced. Learners respond at least ten times to each principle in the lesson <u>following</u> the introduction of the principle. Learners respond at least five times to each principle two lessons following the lesson in which the principle was introduced.

<u>Examples of script (Lesson 5)</u>

Code: (1a) = slide (picture) appearing on Audiscan screen. (1a) will remain on the screen until (1b) appears in the script.

* = a soft "bell" sound which is the signal for the learner to make an oral response.

(5 sec)= a five-second period is allowed for learner responses

△ = a programmed stop--the picture holds on the screen, the audio tape stops, the learner makes an oral response or completes some activity, then pushes the restart button on the Audiscan which restarts the the program.

Audio	Video
1. (1a) (- music -) Let's begin Lesson 5 with a quick review of stro strokes. Call out the strokes as fast as possible. (1b) * △ p, ish, oo, i, v. (1c) * △ k, chay, b, f, j, gay are correct.	1a Review 1b 1c
2. Pronounce these brief forms crisply: (2a) * △ in-not, I, have, a-an, it-at are right (2b) * △ are-our-hour, Mr., am, have are correct.	2a 2b
3. Read this sentence (3a) * △ Now, with the tape. * M-o-s-t-most r-e-t-a-l-retail chay-a-n-chain s-t-o-r-s-stores in R-e-n-o-Reno k-l-o-s-close at 9 paragraph.	3a
4. Try this sentence. (4a) * △ With the tape. * Gay-a-l-Gail will ish-a-r-share h-e-r-her f-oo-d-food period. Read it again, faster. * △	4a

14. You have also been working (14a) with the long "e" sound. The same shorthand stroke also represents (14b) the short e sound. One very easy word using the short e is (14c) l-e-t-let. Read these shorthand words with the tape. (14d) * l-e-t-let, l-e-t-r-letter. Read each word twice, yourself. * △

14a o = ē

14b o = ē ĕ

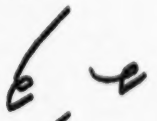
14c

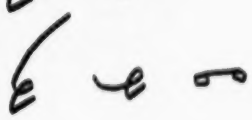
14d

15. (15a) Other common words with a short e sound are (15b) b-e-s-t-best, (15c) r-e-s-t-rest, (15d) e-n-e-any, and (15e) t-e-s-t-test. Read these words with the tape.* b-e-s-t-best, r-e-s-t-rest, e-n-e-any, t-e-s-t-test. Read them again, faster. * △

15a o = ē ĕ

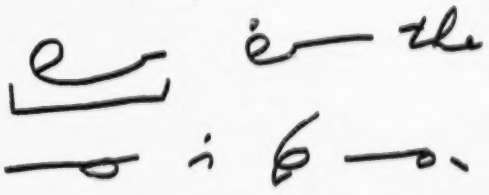
15b

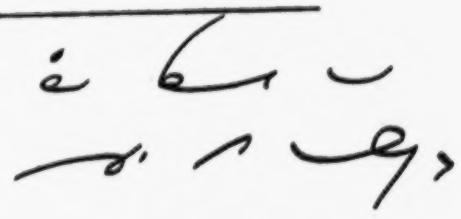
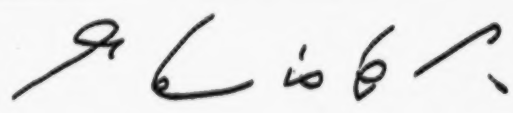
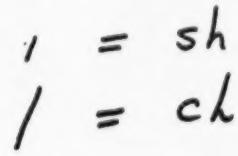
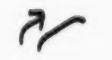
15c 

15d 

15e

19. (19a) Read this sentence with the tape. * I will not h-a-r-m-harm the m-a-n-man h-oo-who p-a-s-t-passed m-e-me period. Read it again, faster. * △

19a 

20. (20a) Try this sentence with the tape. * H-e-r-her b-e-l-s-bills are gay-e-t-ing-getting t-oo-too l-a-r-j-large paragraph. Read it once more. * △	20a 
21. Try this sentence. (21a) * △ Now, with the tape. * D-a-n-s-Dan's b-e-l-bill is p-a-s-t-past d-oo-due period. Very fine.	21a 
23. Very good. (23a) The English language has various letter combinations. You already know ish and chay. The t-h combination (23b) is written with a small, upward curve and is pronounced "ith." There are two ways to write "ith"--(23c) over ith and under ith. Pronounce these strokes with the tape. (23d) * ith, ith. Some words will use an over ith; some will use an under ith.	23a  = sh / = ch 23b = th 23c  = th 23d

24. (24a) One popular word using ith is them. (24b) Then is spelled ith (24c) e (24d) n (24e) then (24f). This same form also represents the word ith-e-n-thin. What two wrods does this form represent? * (5 sec) ith-e-n-then, ith-e-n-thin are correct.	24a 24b 24c 24d 24e 24f
25. The word <u>these</u> (25a) is spelled ith (25b) e (25c) s (25d) these (25e). Spell these shorthand outlines. (25f) * (5 sec) ith-e-s-these, ith-e-n-then or thin are correct.	25a 25b 25c 25d 25e 25f
26. (26a) Other words using the over ith include (26b) ith-e-k-thick, (26c) b-a-ith-bath, and (26d) t-e-ith-teeth. Spell these words with the tape. * ith-e-k-thick, b-a-ith-bath, t-e-ith-teeth. Spell each one twice yourself, very quickly. * Δ Fine.	26a 26b 26c 26d

35. (35a) Ten shorthand strokes appear in the next two frames. Pronounce each stroke aloud. You should pronouce at least nine of them correctly.

(35b) * Δ ith, o, i, chay, s are correct.

(35c) * Δ oo, ish, gay, p, ith are correct.

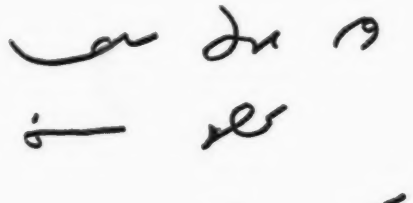
35a Self-check

35b

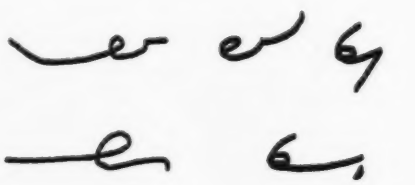
35c

36. (36a) Fifteen words containing various principles appear in the next three frames. You should spell and pronounce at least eleven of them correctly. Note: Many of the shorthand outlines represent more than one word. Use short or soft vowel sounds when possible in spelling the words. (36b) * Δ l-e-t-r-letter, f-a-k-t-s-facts, ith-e-s-these, h-e-m-him or hem, s-t-a-r-t-start are correct. (36c) * Δ h-e-r-her or here, b-o-ith-both, d-e-d-did or dead or deed, h-a-d-had, e-n-e-any are correct. (36d) * Δ l-e-r-n-learn, e-r-ith-earth, s-e-r-chay-search, m-a-r-k-mark, s-e-l-ing-selling or ceiling are right.

36a Self-check

36b 

36c

36d 

37. (37a) If you pronounced all of the strokes correctly or made only one error, and if you did not make more than four errors while spelling and pronouncing the words, (37b) you may proceed to Cartridge 5A, which introduces some new brief forms. If you made more than one error while pronouncing the strokes, or if you made more than four errors while spelling and pronouncing the words, (37c) please view this cartridge, number five, again.	37a Self-evaluation 37b Cartridge 5A 37c View Cartridge 5
38. (- music -) Please turn the Audiscan off. △	

APPENDIX E

Learners complete workbook exercises after viewing the Audiscan and reading from their texts for each lesson.

Slected frames, the self-check, and self-evaluation activities for Lesson 3 follow.

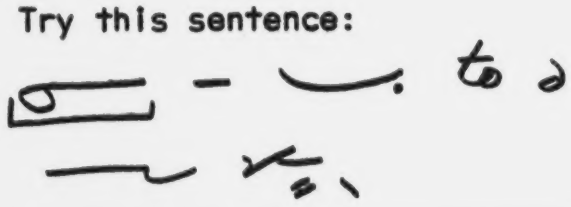
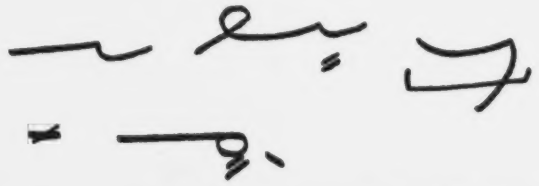
LESSON 3

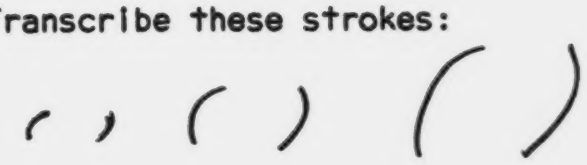
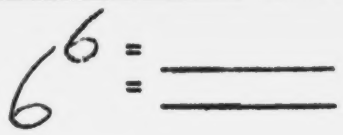
Directions:

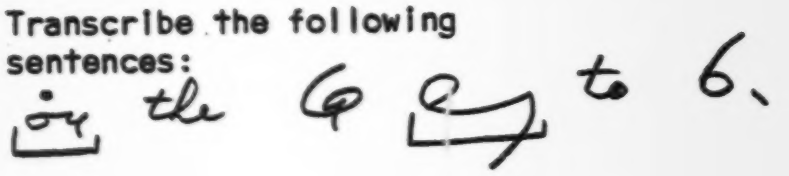
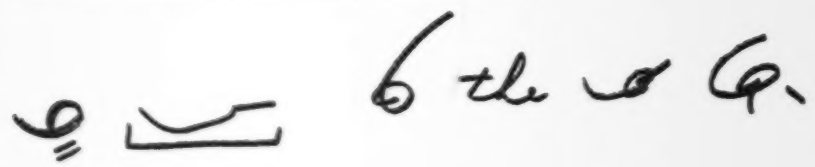
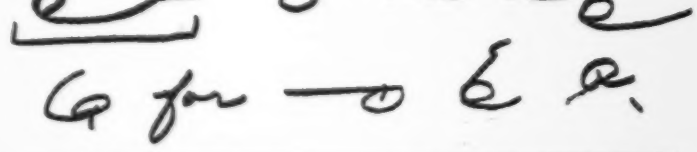
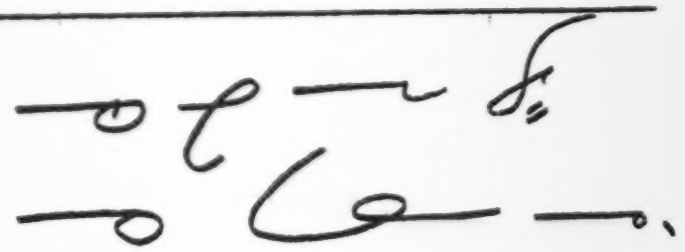
1. Use a spiral bound shorthand tablet to record your answers.
2. Place a 3 x 5 card over the answer column until after you have written your answer. Then lower the card and check yourself.

	1. Transcribe (write into longhand) the following shorthand strokes.
1. f, l, o, l, v	2.
2. e, r, t, n, d	

	3. Transcribe these words using the principles from Lessons 1 and 2. Include alternate spellings.
3. night mail-male hear-here drove fine	4.
4. whole-hole style free role-roll more	5. Transcribe the following brief forms (remember that some of them represent more than one word):
5. in-not have a-an will-well Mr.	6.
6. are-our-hour I am it-at	7. Transcribe this sentence: Phrase
7. He will see Mr. Lee In an hour. (Notice especially the spelling of the underscord words.)	

	8. Try this sentence: 
8. I am not willing to see Mr. Stone.	9. 
9. Mr. Taylor will have it in May.	10. This stroke (ʃ) is called a "comma s." This stroke (ʃ) is called a "_____ ___."
10. left s	11. The "comma s" and "left s" are both written _____. (up/down)
11. down	12. = write or right = _____ or _____
12. writes or rights	

	23. Transcribe these strokes:
23. b,v,	24. B is the opposite of ____.
24. v	25. Transcribe these strokes: 
25. s, s, p, f, b, v	26.
26. s, p. b, s, f, v	27. 
27. pay bay	

	31. Transcribe the following sentences: 
31. He knows the price I will have to pay.	32. 
32. Ray will not buy the right prize. (Rember, the shorthand "s" represents both the letters s and z.)	33. 
33. I will not pay the wholesale price for my spare tire.	34. 
34. My neighbor, Mr. Bates, may blame me.	

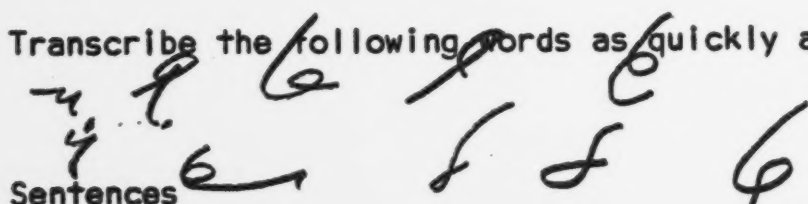
SELF-CHECK

Part I - Brief forms

Transcribe the following <u>brief forms</u> in your shorthand tablet:

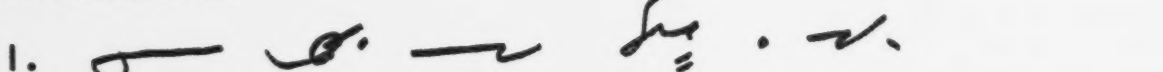
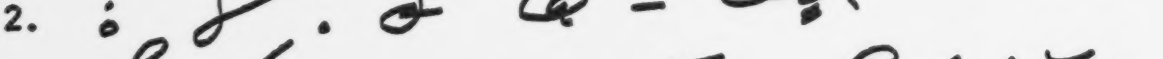
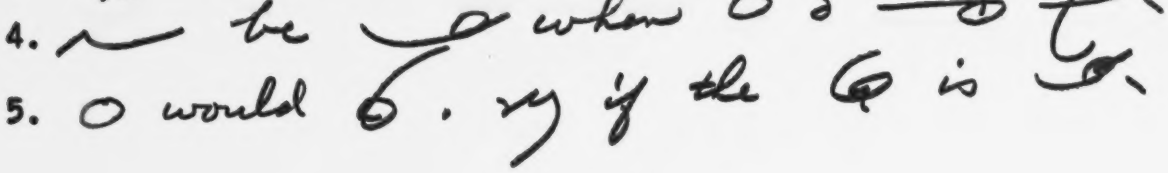
Part II - Words

Transcribe the following words as quickly as possible:



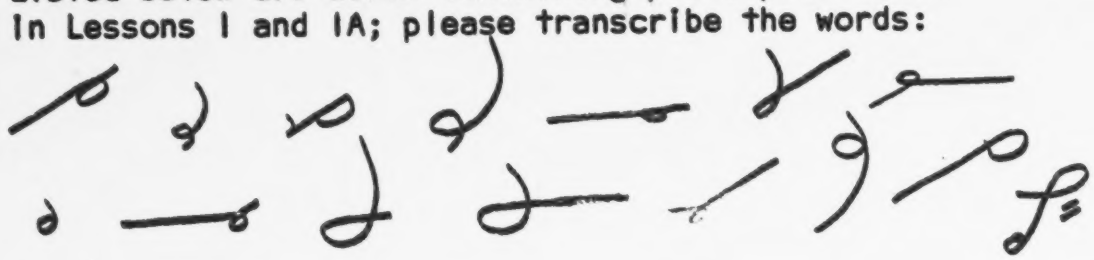
Part III - Sentences

Transcribe the following sentences (Phrases are <u>not</u> underscored):

1. 
2. 
3.
4.
5. 

Part IV - Recall

Listed below are words containing principles found in Lessons I and IA; please transcribe the words:



SELF-CHECK ANSWERS

Part I - Brief forms: in-not, will-well, Mr., a-an, it-at, have, are-our-hour, I, am

Part II - Words: knows or nose, typing, brain, days or daze, paper, hope, sales or sails, beat or beet, pain or pane, brave

Part III - Sentences: (Note especially the spelling of the underscored words.)

1. I am <u>writing</u> Mr. Peters a note.
2. He <u>paid</u> a fine price in Reno.
3. Dave's boat will <u>sail</u> 15 miles <u>an</u> <u>hour</u>.
4. It will /be/ late /when/ I see my <u>neighbor</u>.
5. I /would/ <u>buy</u> a stove /if the/ <u>price</u> is <u>right</u>.

Part IV - Recall: date, fees, stay, vase, mean, feed, team, see, meet or meat, vain, fame, need, save day, Navy

PLEASE TURN TO THE SELF-EVALUATION ON THE NEXT PAGE.

SELF-EVALUATION

Part I (Brief forms) errors	Part II (words) errors	Part III (sentences) errors	Part IV (recall) errors	Next Activity
0-1	0-3	0-10	0-4	a. Proceed to Cartridge 4
2 or more				a. View Cartridge 3. b. Take self-check No. 2 appearing on page .
	4-5	11-17		a. Study Lesson 3 in your text b. Complete Lesson 3 workbook exercises c. Take self-check No. 2 appearing on page .
	6 or more	18 or more		a. Review procedure for studying from your text! Are you spelling and pronouncing each shorthand outline aloud? b. Ask your teacher to help you improve your study habits. c. Study Lesson 2 in your text. d. View Cartridge 3A. e. Study Lesson 3 in your text. f. Complete Lesson 3 workbook exercises. g. Take self-check No. 2 appearing on page .
			5-8	a. Study Lessons 1 and 1A in your text. b. Complete Lessons 1 and 1A workbook exercises. c. Take self-check No. 2 appearing on page .
			9 or more	a. View Cartridge 1 and 1A. b. Study Lessons 1 and 1A in your text. c. Complete Lessons 1 and 1A workbook exercises. d. Take self-check No. 2 appearing on page .

NOTE: You must meet the requirements of all four parts to proceed to Cartridge 4. If you are directed to repeat any part of the lesson, please do so.

OE 6000 (REV. 9-66)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION

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TITLE

100 AN EXPERIMENTAL SELF-INSTRUCTIONAL SYSTEM
101 FOR INTRODUCING GREGG SHORTHAND
102
103

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602 Shorthand
603 Instructional System
604 Self-Instruction
605
606

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607 Vo-Tech. Education Research and Development Project No. (0E7-0031)

ABSTRACT

800 The purpose was to explore the extent to which a prototype
801 multi-media self-instructional system comprised of 48 lessons can
802 be used to help eleventh and twelfth grade students acquire defined
803 levels of Gregg shorthand capabilities.
804
805 Criteria for measuring student competencies at interim points
806 and at the completion of the system and interim and terminal performance
807 objectives were defined. Prerequisite entry abilities were also
808 defined to provide a basis for later selection of a population
809 suitable for realistically testing the system.
810 Learning tasks necessary to achieve minimum competencies in the
811 first six lessons of the system have been identified and sequenced.
812 An evaluation matrix to measure student achievement has been developed.
813 A proposed strategy for enabling learners to perform the Lesson 6
814 criterion tasks has been identified and appropriate content materials
815 have been developed.
816 A prototype of lessons 1-6 is completed and ready for pilot
817 testing in October, 1968.
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